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KOREAN SPACE WEATHER CENTER



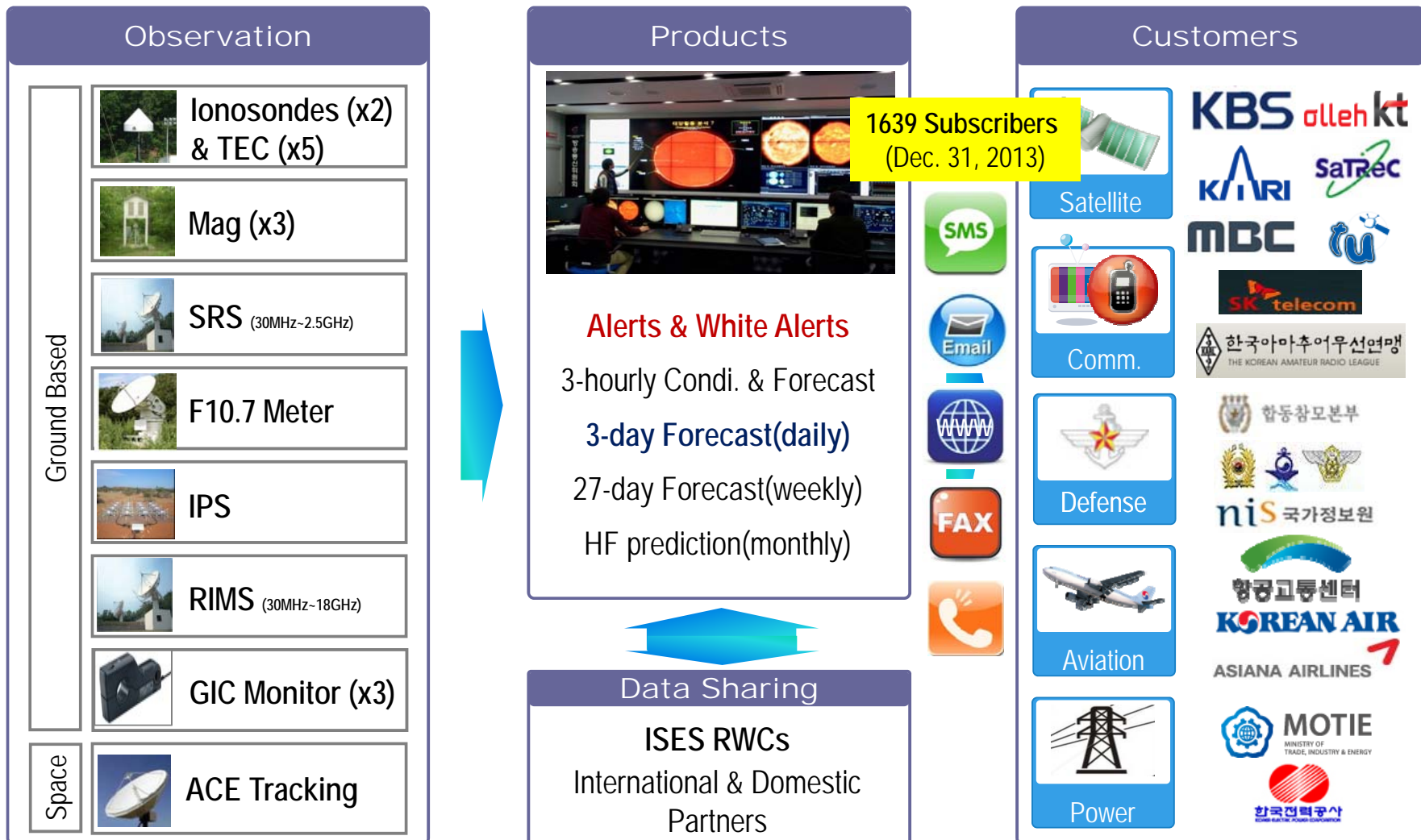
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SUNHAK HONG, KICHANG YOON, SUNGWON PARK,
YUNG-KYU KIM, *Seung-man Choi*

SWx Operations – operational work flow

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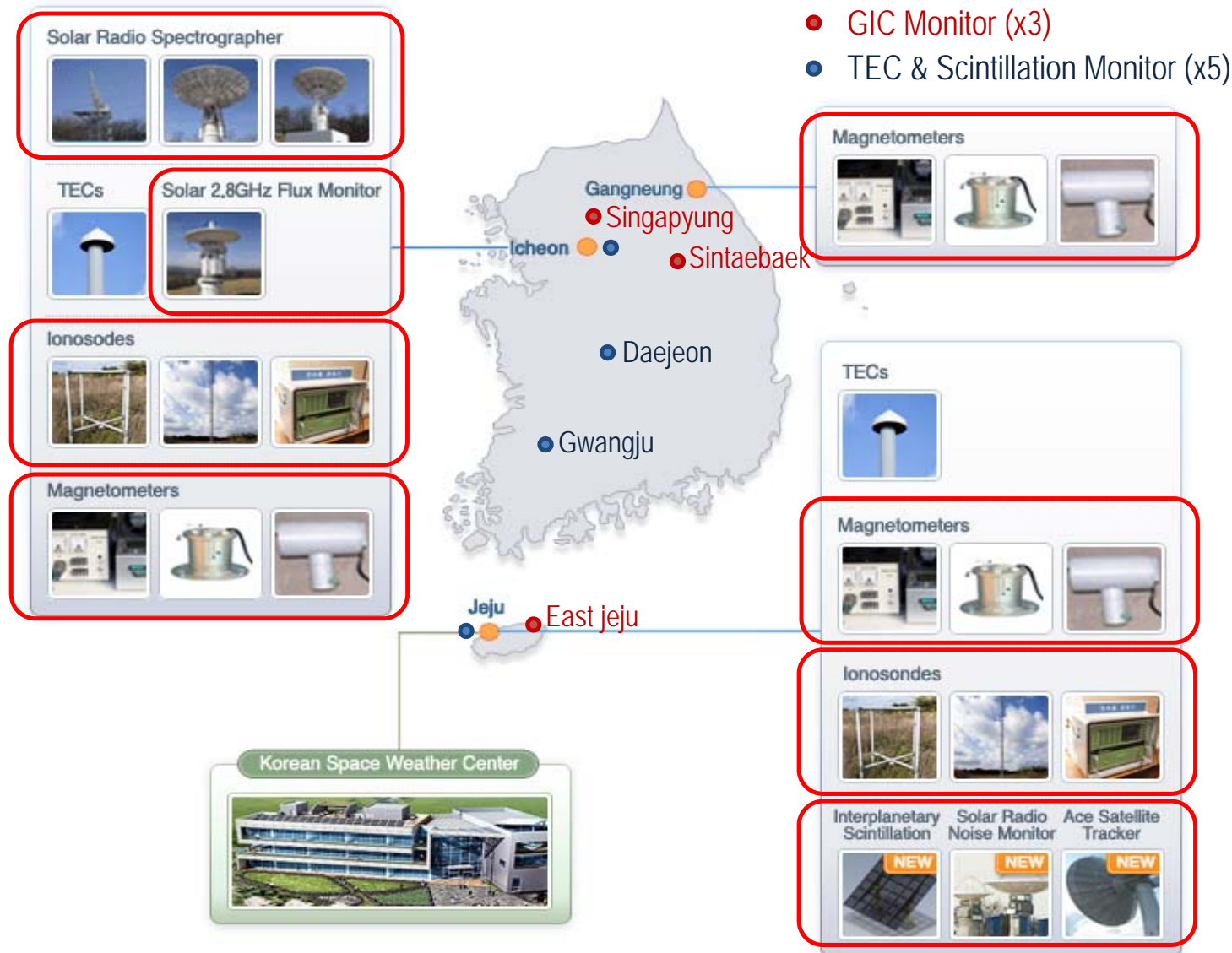
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SWx Operations – observatory network

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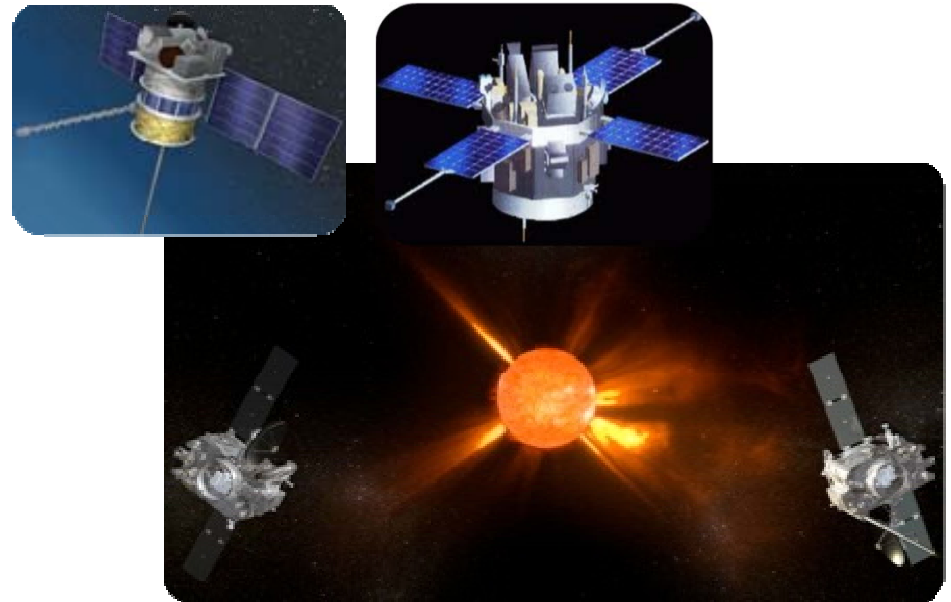
➤ ACE Tracking Antenna

- ✓ global tracking network for RTSW
- ✓ 13-meter dish antenna (S-band)
- ✓ in operation since Feb 2012
- ✓ will be upgraded for DSCOVR by Dec 2014



➤ New Tracking Antenna

- ✓ 13-meter dish antenna
- ✓ dual RF (X-band, S-band) & triple receiver switching for STEREO, ACE, DSCOVR tracking
- ✓ will be ready by Dec 2014



Solar Activity

ASSA : Automatic Solar Synoptic Analyzer
solar cycle prediction

Solar Wind

WSA-Enlil + Cone (Dr. Dusan Odstrcil & SWPC)
IPS Solar Wind Reconstruction
(Dr. Bernard Jackson & STELab. of Nagoya Univ.)

Satellite

GEO environment prediction
LEO environment prediction

Airline

polar route communication prediction
polar route radiation dose prediction

GIC

local GIC prediction model
local GIC map

GPS

local TEC map
local GPS ionospheric error map

Communications

local ionospheric model (IRI-2012 + VOACAP + local data)
real-time usable HF frequency

ASSA Automatic Solar Synoptic Analyzer

Feedback

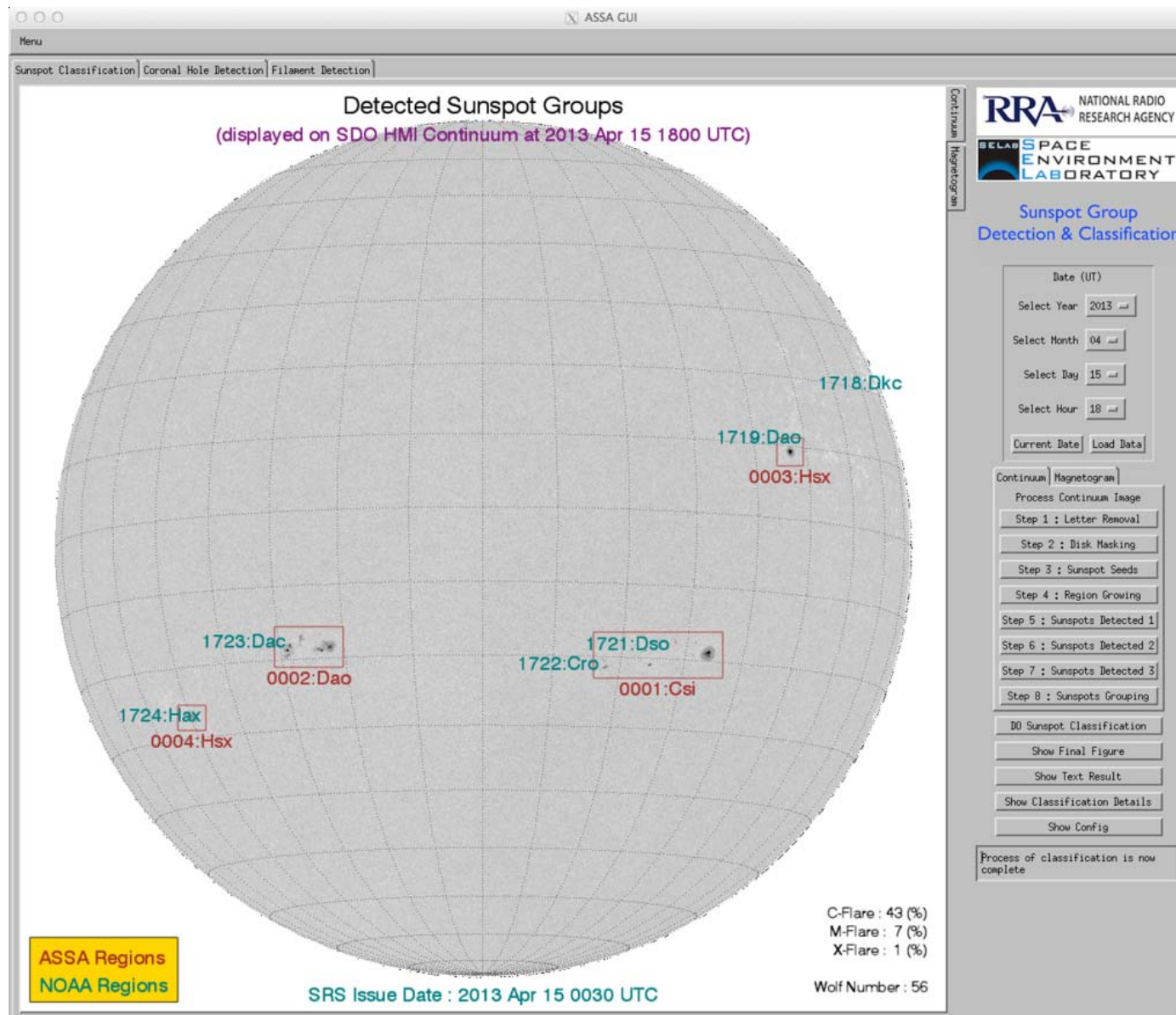
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Research Activities – A standalone version of ASSA

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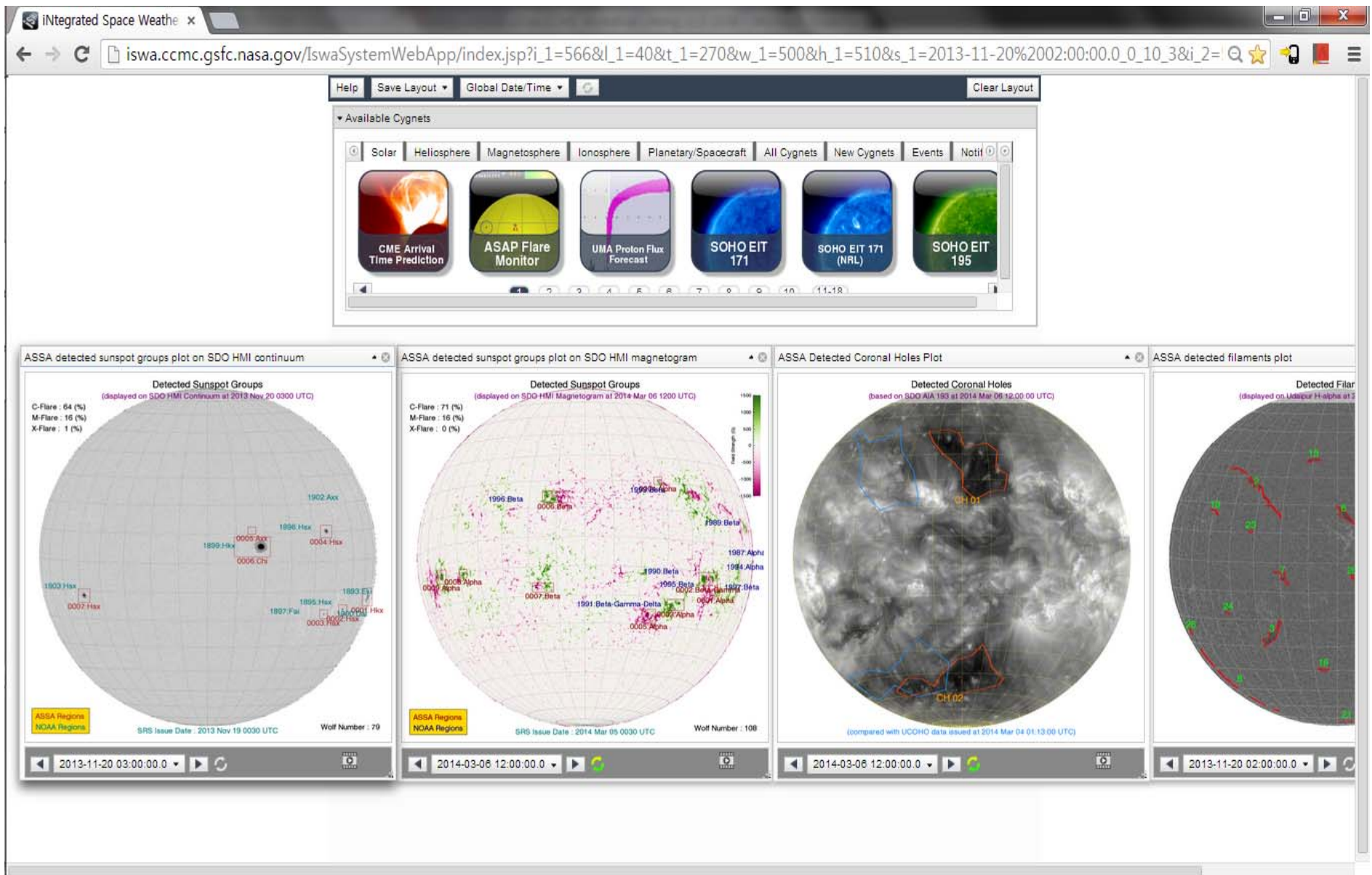
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Download from www.spaceweather.go.kr/assa



Research Activities – ASSA at NASA/CCMC

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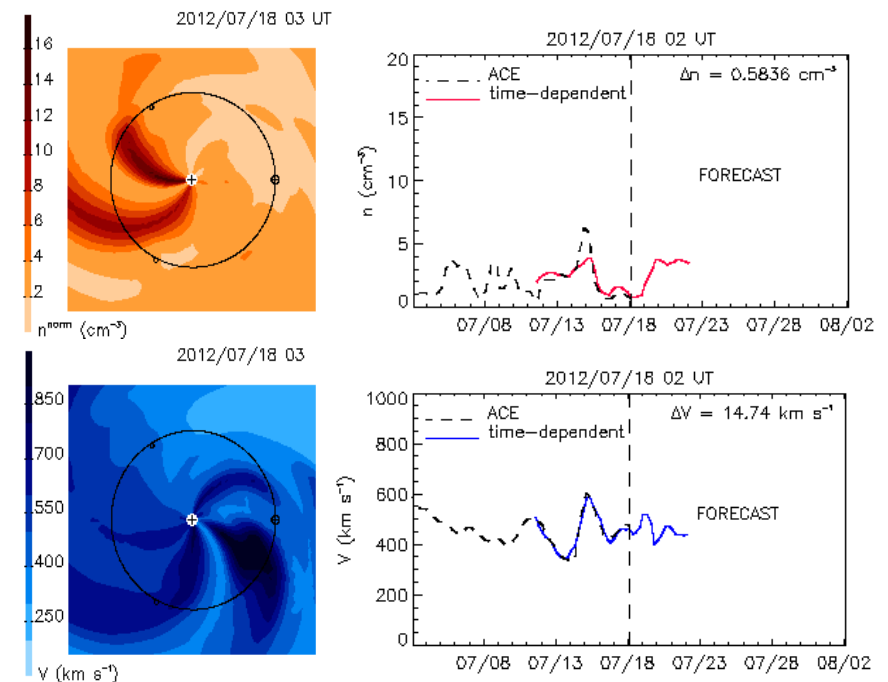
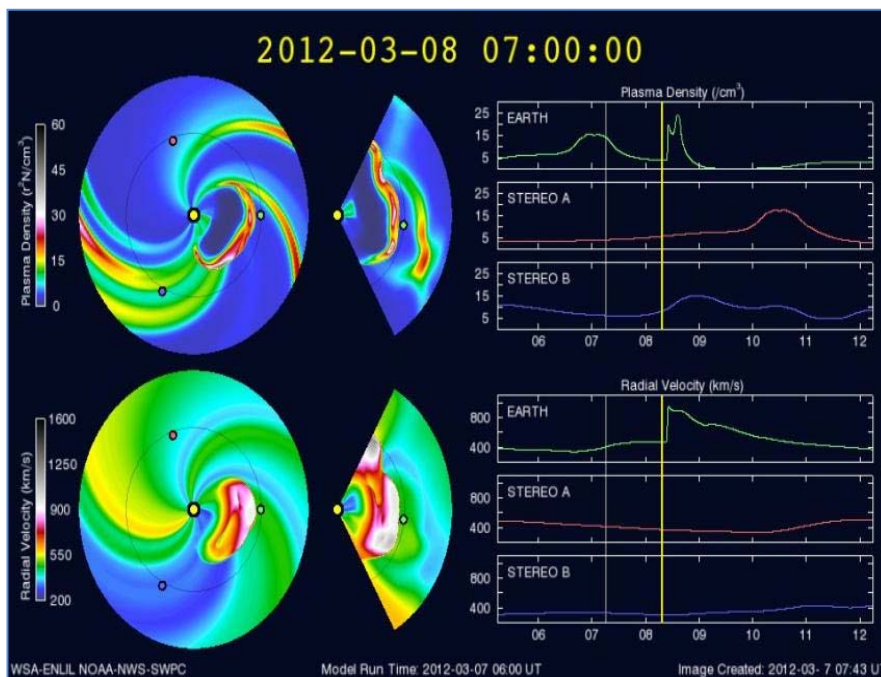


➤ Currently in Operation

- ✓ WSA-Enlil+CONE
 - : in operation since Dec 2012
- ✓ IPS Tomographic Model
 - : in operation since Mar 2013

➤ New Development

- ✓ KSWC is funding to UCSD & GMU
 - perform **IPS-Driven Enlil** model study
- ✓ It will provide CME arrival prediction
 - without coronagraph data.



Research Activities – support for aviation group

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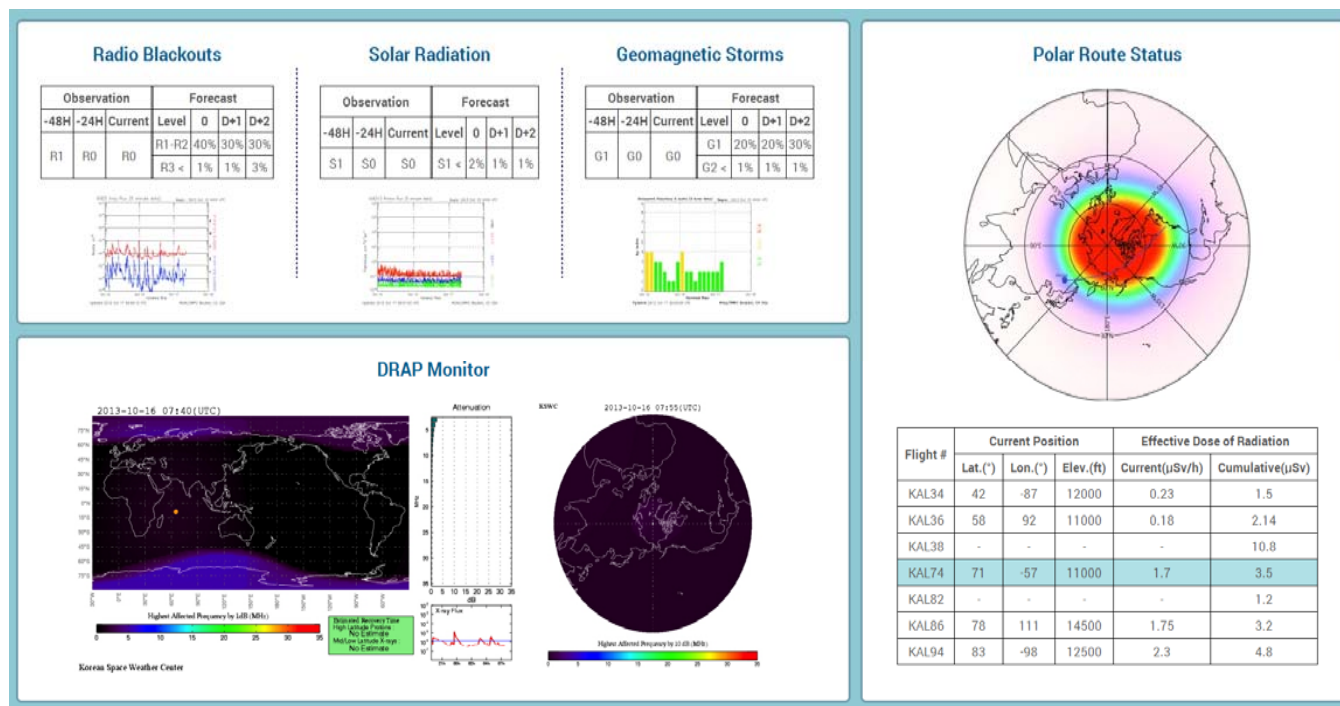
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➤ Polar route SWx monitor (Dec 2013~)

- ✓ A tailor made system - live flight position tracking (for Korean Air & Asiana Air)
- ✓ provide HF attenuation (D-RAP+PCA) & radiation dose rate (CARI-6)

➤ ARMAS-Lite Project (2014~)

- ✓ Automated Radiation Measurements for Aviation Safety
- ✓ fly with airplanes of NOAA & NCAR
- ✓ comparison with NAIRAS model



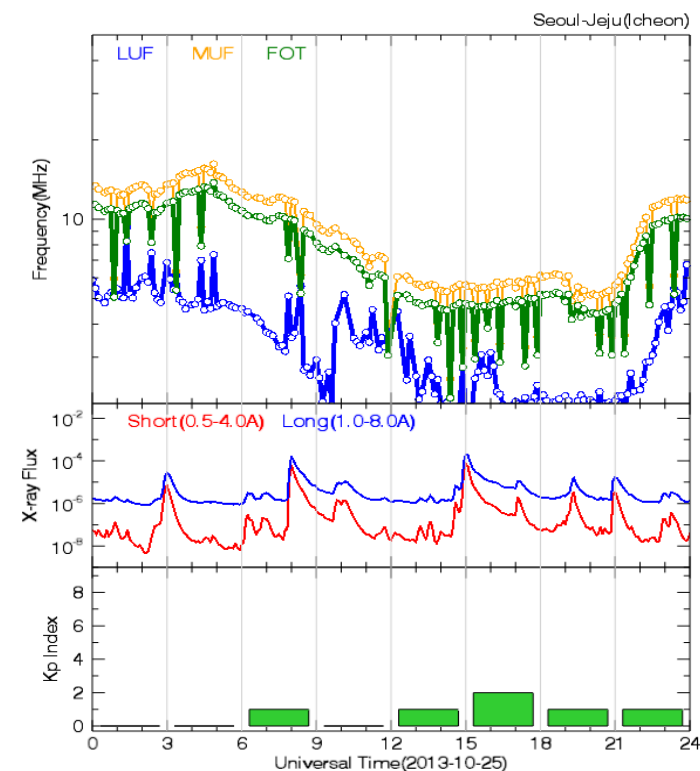
➤ Local Ionospheric Model

- ✓ IRI-2012 + VOACAP + local data assimilation
- ✓ real-time usable HF frequency for airlines, ships, military, etc
- ✓ expand the model coverage to East Asia in 2014



*Ionosonde
(DPS4D, Icheon)*

*Ionosonde
(DPS4D, Jeju)*



SWx Operations - SNS & Mobile App.

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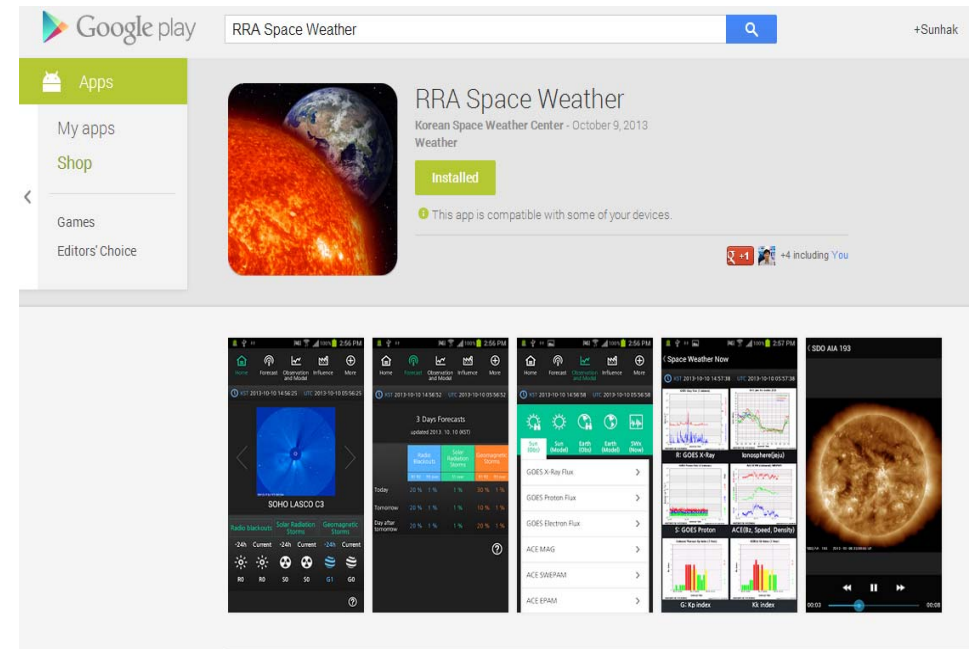
➤ [SNS] The Facebook

- ✓ daily SWx cast video (2-min length), post analysis, tutorials, etc
- ✓ facebook.com/rwcjeju (Korean)



➤ [Mobile App] RRA Space Weather

- ✓ real-time SWx condition & forecast
- ✓ observation data and model results
- ✓ iOS & Android version (English)



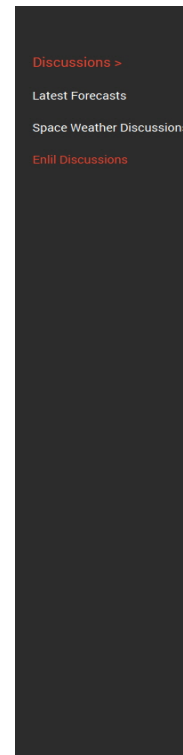
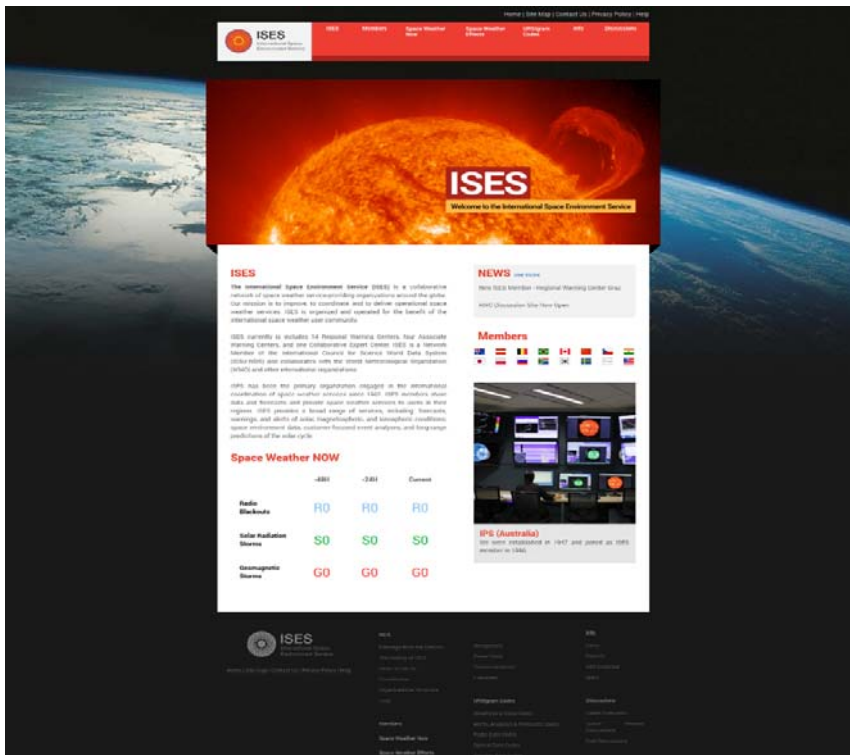
SWx Operations – international forecast coordination

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➤ ISES's New Website (ises-spaceweather.org)

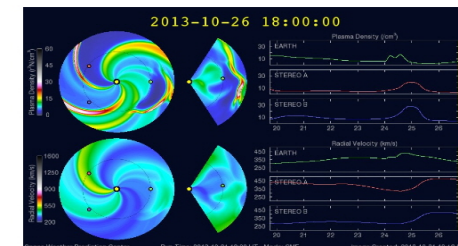
- ✓ [New functionalities] - 'SWx Now', 'Latest Forecasts'
- ✓ [Special tools for RWCs] - 'SWx Discussion', 'Enlil Discussion'



Enlil Discussion

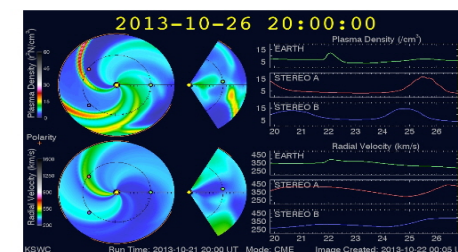
Logout

SWPC (USA)



For more information, please visit SWPC website.

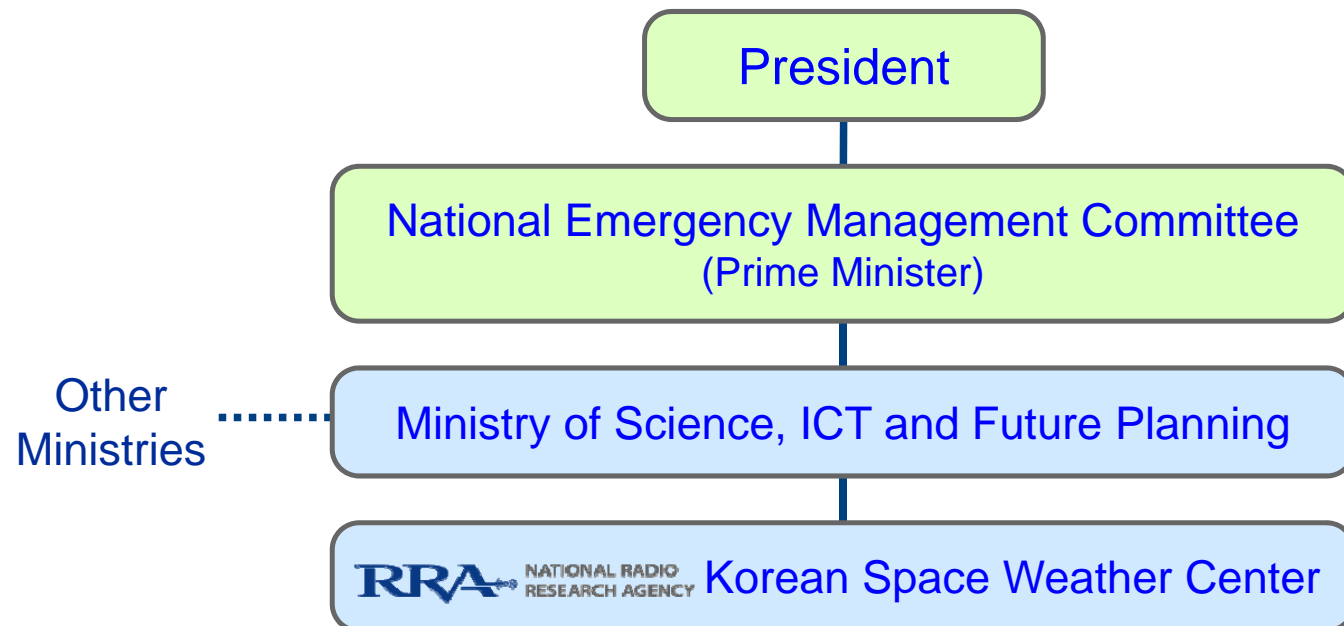
KSWC (Republic of Korea)



For more information, please visit KSWC website.

➤ **Space Weather Disaster Management Manual** (Feb. 2013)

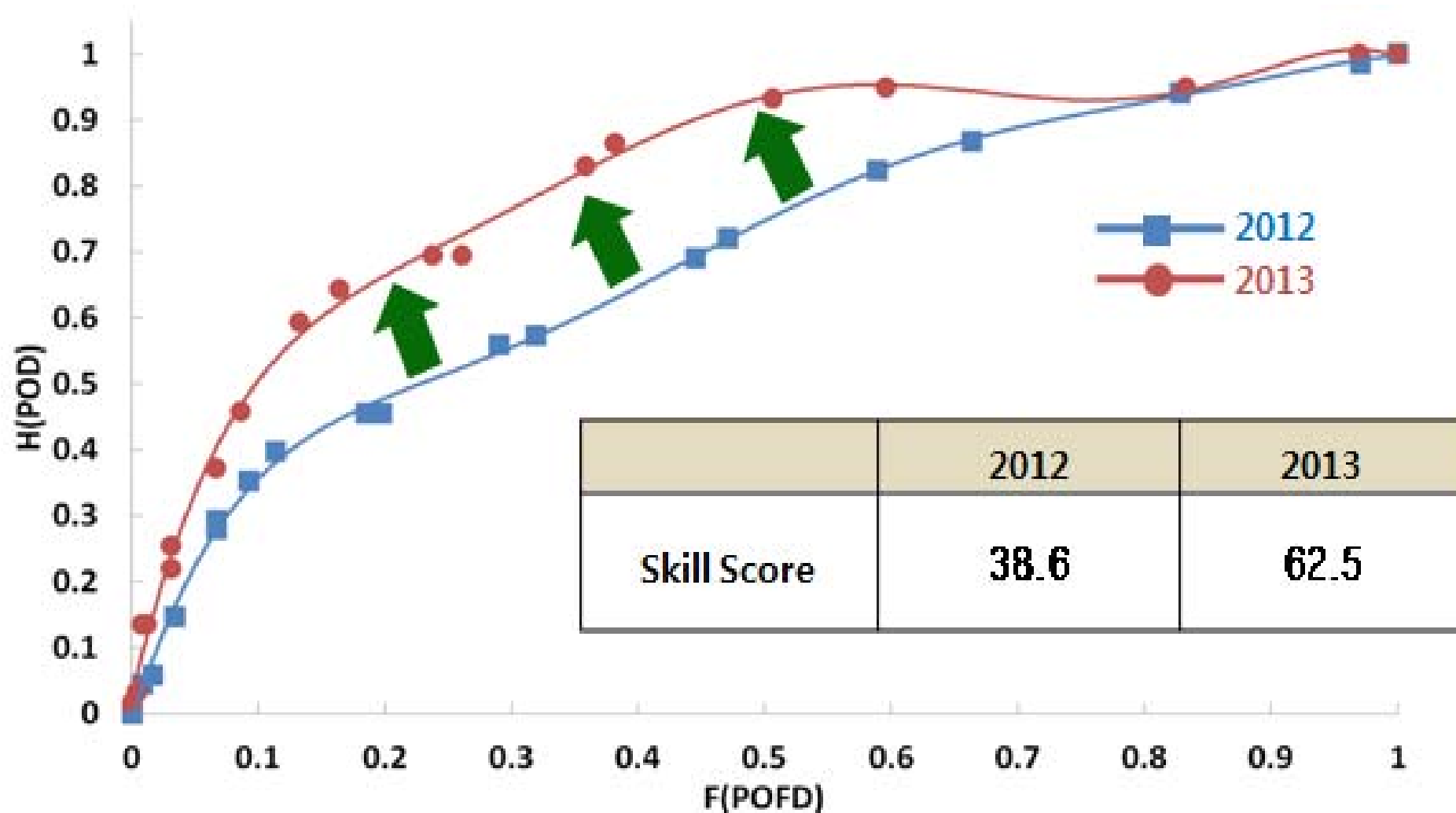
- ✓ space weather was included in the national risk profile
- ✓ the government's official manual was approved
 - describes the roles & responsibilities of related ministries and agencies
 - removing confusion & increasing efficiency among different organizations



Forecast Verification

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5th Int'l Space Weather Conference

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